



Foamfrax

for
Kiln Car Applications

*greener
cleaner
safer*

*specialty products that
save energy, reduce pollution and improve fire safety*

Overview

- Technology
- Foamfrax Process
- Benefits
- Product Forms
- Foamfrax HD
- Case Studies

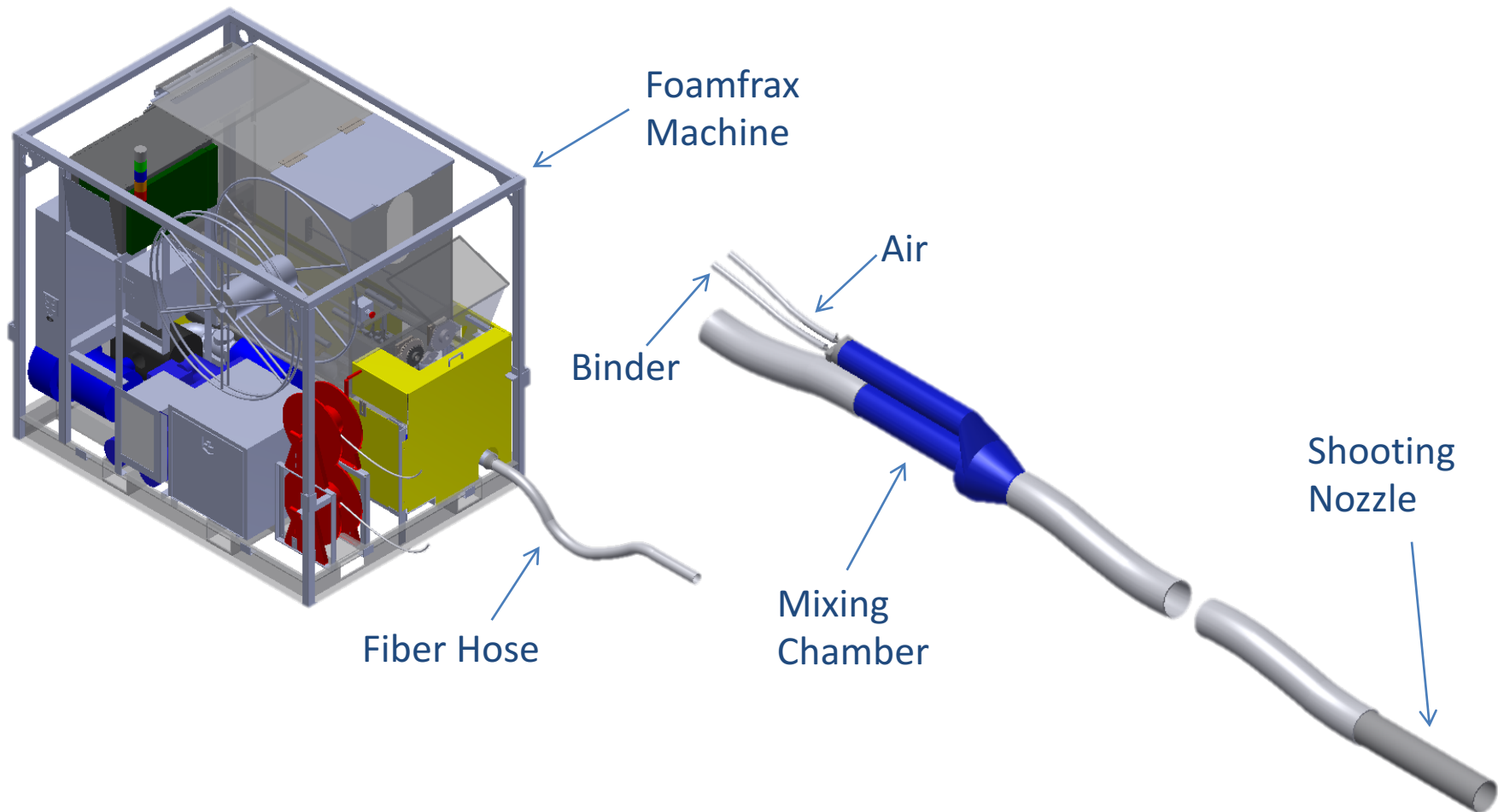




Technology

- **Proprietary Technology Encapsulates Fibers in Foam Binder Matrix**
- **Unifrax Holds the Technology License for the Refractory Market, Global Agreement**
- **Foamfrax Utilizes Proprietary Binders and Equipment.**
- **Installed by Unifrax Licensed Distributor/Contractors**

Foamfrax Process





Benefits

- **Speed of installation**
- **Low airborne fiber levels**
- **Fuel/Energy efficiency**
- **Lighter (8pcf – 25pcf) than dense refractories**
- **Monolithic ceramic fiber lining system**
- **Well suited for intricate geometries**

Product Forms

- Foamfrax Grade I (2300° F)
- Foamfrax Grade II (2600° F)
- Foamfrax Grade III (3000° F)
- Foamfrax RG (1800° F)
- Foamfrax RG+ (2300° F)
- **Foamfrax HD (2300°, 2600° & 3000°)**
- Isofoam (2300° F) Low Bio-Persistent Fiber
- Isofoam RG (1800° F) Low Bio-Persistent Fiber



Kiln Car Applications





Foamfrax HD

○ Product Properties

- More dense Foamfrax product across all temperature grades
- Airborne fibers within acceptable limits
- Acceptable shrinkage at recommended maximum use temperature
- Strength equivalent to a similar vacuum formed part.



Foamfrax HD

○ Target Applications

- Large, low volume vacuum formed shapes
- Consumable applications
- Furnace lining wear areas
- Hotface lining for velocity resistance



Foamfrax HD

○ Foamfrax HD System

➤ Foamfrax Fibers

- Grades I, II, and III

➤ Kaolin Clay

- Added to the binder system

- Optimized for particle size and dispersion properties

➤ Field Mix Binder System

- Foamfrax A Binder

- Foamfrax B Binder

- Water

- Like RG, clay supplied at no charge

- **Must be Force Dried**

Foamfrax HD





Foamfrax HD Kiln Car

- **Scope**
 - **Foamfrax Grade HD I Installation, 9” thick**
 - **Removable forms used**
 - **Operating Temperature – 2100F max.**
 - **Troweled Smooth and Scored**



Kiln Car



Foamfrax HD Installation



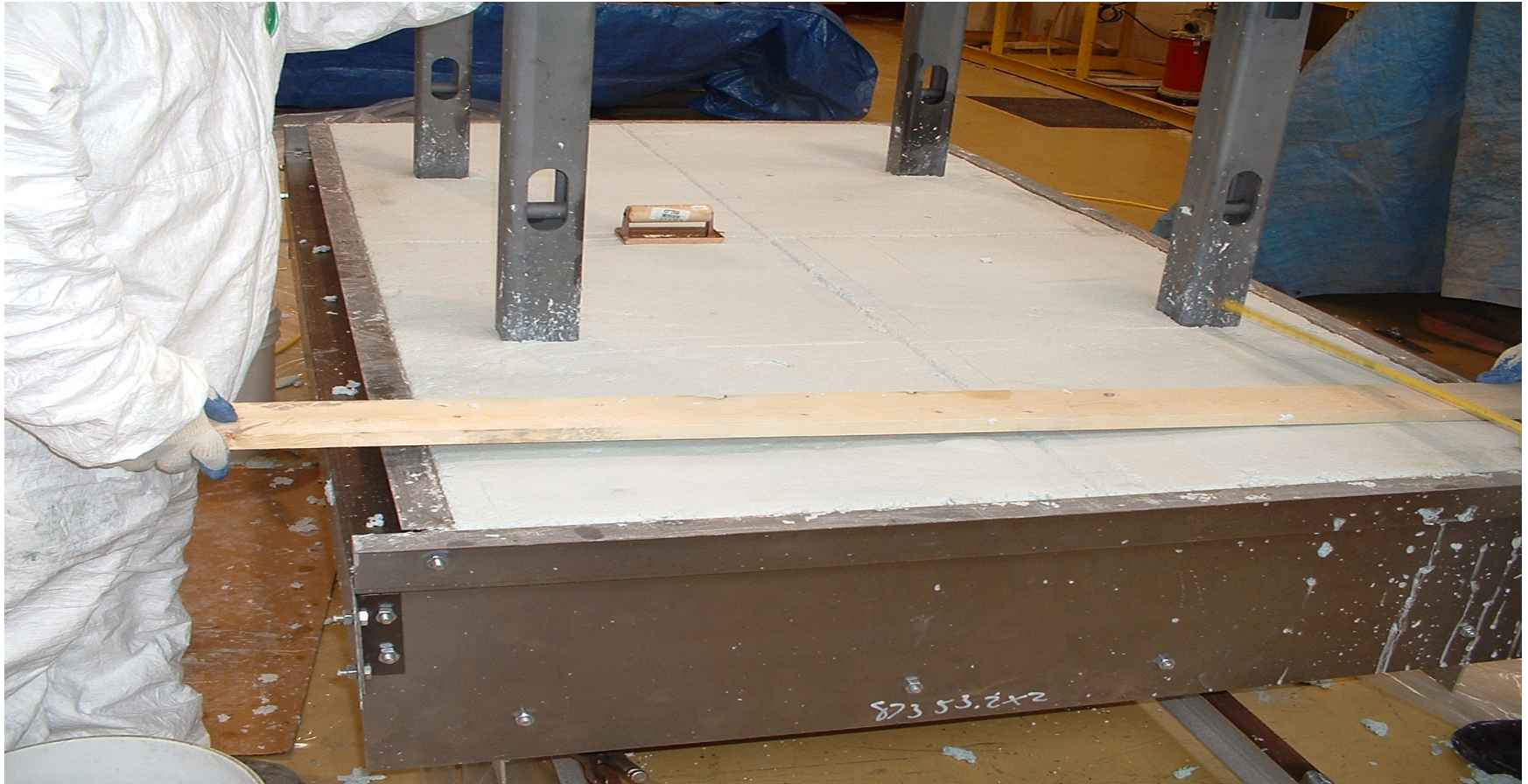
Foamfrax HD Installation



Hot Face Troweling



Installing Score Marks



Finished Car



Finished Car





Foamfrax HD Grade I/III Kiln Car

- Scope
 - Kiln car for a periodic kiln firing at 2600F
 - Lining Cross-Section
 - 7-1/2” Foamfrax HD Grade I
 - 4-1/2” Foamfrax HD Grade III
 - Fibermass 2600 Modules, 12pcf perimeter “Rub” seal

Completed Car



Car Profile



After Service



Car/Bench Seal





Foamfrax HD

- **Advantages**
 - Installation rates of 1000 board feet per hour and higher
 - Monolithic lining
 - Composite Lining system available
 - Reduced fiber dust exposure
 - Seals better around complex geometries
 - No cure schedule
 - Lighter than castable



Foamfrax University



You 



QUESTIONS ?

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Thank You For Considering Foamfrax & Foamfrax RG as a Heat Management Solution

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